AMENDMENTS TO THE CLAIMS

Claims 1 and 10 have been amended and claims 19-28 have been added. A listing of all claims and their current status in accordance with 37 C.F.R. § 1.121(c) is provided below.

1. (Currently Amended) A method of ensemble averaging signals in a pulse oximeter, comprising:

receiving first and second electromagnetic radiation signals from a blood perfused tissue portion corresponding to two different wavelengths of light;

obtaining an assessment of the signal quality of said electromagnetic signals;

calculating ~~selecting~~ weights for an ensemble averager from a continuous weighting function using said assessment of signal quality; and

ensemble averaging said electromagnetic signals using said ensemble averager.

2. (Original) The method of claim 1 wherein said obtaining an assessment of said signal quality comprises obtaining a measure of the degree of arrhythmia of said signals.

3. (Original) The method of claim 2 wherein said obtaining an assessment of said signal quality further comprises obtaining a measure of the degree of similarity or correlation between said first and second electromagnetic radiation signals.

4. (Original) The method of claim 1 wherein said obtaining an assessment of said signal quality comprises obtaining a measure of the degree of motion artifact present in said signals.

5. (Original) The method of claim 4 wherein said obtaining a measure of the degree of motion artifact comprises obtaining a ratio of a current pulse amplitude to the long-term average pulse amplitude of said signals.

6. (Original) The method of claim 1 wherein said obtaining an assessment of said signal quality comprises obtaining a ratio of a current pulse amplitude to the previous pulse amplitude of said signal.

7. (Original) The method of claim 1 wherein said obtaining an assessment of said signal quality comprises obtaining a measure of the degree of the overall signal quality metric for a single pulse, which metric is itself a combination of several other metrics.

8. (Original) The method of claim 1 wherein said obtaining an assessment of said signal quality comprises obtaining a ratio of a current pulse period to that of an average pulse period of said signals.

9. (Original) The method of claim 1 wherein said selecting weights comprises forming a combination of one or more parameters selected from the group consisting

of a measure of the degree of arrhythmia of said signals, a measure of the degree of similarity or correlation between said first and second electromagnetic radiation signals, a measure of the degree of motion artifact by obtaining a ratio of a current pulse amplitude to the long-term average pulse amplitude of said signals, a ratio of a current pulse amplitude to the previous pulse amplitude of said signal, and a ratio of a current pulse period to that of an average pulse period of said signals.

10. (Currently Amended) A device for ensemble averaging signals in a pulse oximeter, comprising:

means for receiving first and second electromagnetic radiation signals from a blood perfused tissue portion corresponding to two different wavelengths of light;

means for obtaining an assessment of the signal quality of said electromagnetic signals;

means for selecting weights for an ensemble averager <u>from a continuous weighting function</u> using said assessment of signal quality; and

an ensemble averager for ensemble averaging said electromagnetic signals using said weights.

11. (Original) The device of claim 10 wherein said means for obtaining an assessment of said signal quality are configured for obtaining a measure of the degree of arrhythmia of said signals.

12. (Original) The device of claim 11 wherein said means for obtaining an assessment of said signal quality are further configured for obtaining a measure of the degree of similarity or correlation between said first and second electromagnetic radiation signals.

13. (Original) The device of claim 10 wherein said means for obtaining an assessment of said signal quality are configured for obtaining a measure of the degree of motion artifact present in said signals.

14. (Original) The device of claim 10 wherein said means for obtaining an assessment of said signal quality are configured for obtaining a ratio of a current pulse amplitude to the long-term average pulse amplitude of said signals.

15. (Original) The device of claim 10 wherein said means for obtaining an assessment of said signal quality are configured for obtaining a ratio of a current pulse amplitude to the previous pulse amplitude of said signal.

16. (Original) The device of claim 10 wherein said means for obtaining an assessment of said signal quality are configured for obtaining a measure of the degree of the overall signal quality metric for a single pulse, which metric is itself a combination of several other metrics.

17. (Original) The device of claim 10 wherein said means for obtaining an assessment of said signal quality are configured for obtaining a ratio of a current pulse period to that of an average pulse period of said signals.

18. (Original) The device of claim 10 wherein said means for selecting weights are configured for forming a combination of one or more parameters selected from the group consisting of a measure of the degree of arrhythmia of said signals, a measure of the degree of similarity or correlation between said first and second electromagnetic radiation signals, a measure of the degree of motion artifact by obtaining a ratio of a current pulse amplitude to the long-term average pulse amplitude of said signals, a ratio of a current pulse amplitude to the previous pulse amplitude of said signal, and a ratio of a current pulse period to that of an average pulse period of said signals.

19. (New) A pulse oximetry system comprising:

a sensor configured to receive first and second electromagnetic radiation signals from a blood perfused tissue portion corresponding to two different wavelengths of light; and

a pulse oximeter configured to:

obtain an assessment of the signal quality of the electromagnetic signals;

calculate at least one weight for an ensemble average using a continuously variable weighting function using the assessment of signal quality; and

ensemble average the electromagnetic signals using the calculated weight.

20. (New) The pulse oximetry system of claim 19 wherein the pulse oximeter is configured to obtain the assessment of the signal quality by determining a correlation between the first and second electromagnetic radiation signals.

21. (New) The pulse oximetry system of claim 19 wherein the pulse oximeter is configured to obtain the assessment of the signal quality by measuring a degree of variability of a ratio-of-ratios of the first and second electromagnetic radiation signals.

22. (New) The pulse oximetry system of claim 19, wherein the pulse oximeter is configured to calculate the at least one weight independent of an ECG signal.

23. (New) The pulse oximetry system of claim 19, wherein the pulse oximeter is configured to calculate the at least one weight based on a variability of a ratio-of-ratios over a time.

24. (New) The pulse oximetry system of claim 19, wherein the pulse oximeter is configured to calculate the at least one weight based on a pulse qualification score.

25. (New) The pulse oximetry system of claim 19, wherein the pulse oximeter is configured to calculate the at least one weight based on a pulse qualification score computed by pulse qualification neural net.

26. (New) A pulse oximetry system configured to:

receive first and second electromagnetic radiation signals from a blood perfused tissue portion corresponding to two different wavelengths of light;

obtain an assessment of the signal quality of the electromagnetic signals;

select a first set of ensemble averaging weights based on the assessment of signal quality;

receive an indication of arrhythmia;

reduce one or more ensemble averaging weights in response to receiving the indication of arrhythmia to create a second set of ensemble averaging weights; and

ensemble average the electromagnetic signals using the second set of ensemble averaging weights.

27. (New) A tangible machine readable medium comprising:

code adapted to calculate a signal quality metric based on a correlation between a first received light signal and a second received light signal, wherein the first signal and the second signal are received at substantially the same time;

code adapted to determine ensemble averaging weights based on a continuously variable weighting function; and

code adapted to ensemble average the electromagnetic signals using the determined ensemble averaging weights.

28. (New) The tangible machine readable medium of claim 27, wherein the code adapted to calculate the signal quality metric is configured to calculate the signal quality based on a ratio of a current pulse amplitude to a previously-measured pulse amplitude.